

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-301431

(43)Date of publication of application : 02.11.1999

(51)Int.CI.

B60T 7/06
B60K 26/02

(21)Application number : 10-111048

(71)Applicant : TOYOTA MOTOR CORP

(22)Date of filing : 21.04.1998

(72)Inventor : MATSUURA YUTAKA

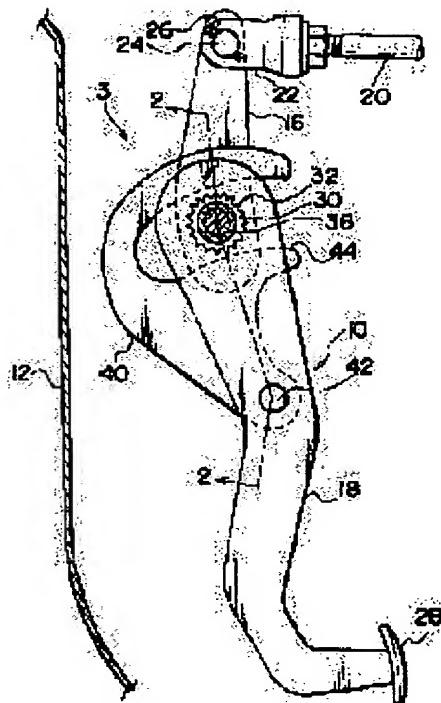
(54) VEHICLE PEDAL SUPPORT STRUCTURE

(57)Abstract:

PROBLEM TO BE SOLVED: To put a tread of a vehicle pedal in the free condition when an external force over a given value is applied to the front part of the vehicle.

SOLUTION: A brake pedal 10 is divided as an upper-pedal arm 16 which is welded to a pedal boss 30 and is connected with a push rod 20 and a lower-pedal arm 18 which is serration-engaged with the pedal boss 30 and has a pedal pad 28 at its end. Between the both arms, a release lever 40 for releasing the serration-engagement between the lower-pedal arm 18 and the pedal boss 30 by oscillating around a rivet 42 is arranged.

Therefore, when an external force over a given value is applied to the front part of the vehicle and a front panel 12 displaces backward, the release lever 40 oscillates with the front panel 12 and the lower-pedal arm 18 becomes in the rotatable condition in relation to the pedal boss 30.



LEGAL STATUS

[Date of request for examination] 17.01.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] It is supported rockable at the circumference of a center-of-oscillation shaft. It is the pedal supporting structure for cars applied to the pedal for cars which transmits the treading strength which crew gave through the treading strength transfer member which rocked by giving crew's treading strength to the tread prepared in the lower limit section, and was connected with the predetermined part to a fluid pressure conversion means. Said pedal for cars The 1st arm connected the treading strength transfer member side and the 2nd arm equipped with the tread while engaging with the 1st arm concerned, The pedal supporting structure for cars characterized by what it consisted of ***** and has a discharge means to cancel engagement on the 1st arm and the 2nd arm further using the variation rate by the side of the abbreviation car back of the car-body side configuration member at the time of the external force beyond a predetermined value acting on car anterior part for.

[Claim 2] The pedal supporting structure for cars according to claim 1 characterized by what it has a regulation means to regulate the relative displacement more than the specified quantity to the pedal treading-in direction of the 2nd arm to the 1st arm for in the condition that engagement on the 1st arm and the 2nd arm was canceled.

[Translation done.]

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the pedal supporting structure for cars applied to the pedal for cars which transmits the treading strength which crew gave through the treading strength transfer member which was supported rockable at the circumference of a center-of-oscillation shaft, rocked by giving crew's treading strength to the tread prepared at the lower limit section, and was connected with the predetermined part to a fluid pressure conversion means.

[0002]

[Description of the Prior Art] From the former, various cures are taken as a cure at the time of the external force beyond a predetermined value acting from the front of a car. The configuration indicated by JP,1-73464,U can be mentioned as an example of this kind of cure.

[0003] If it explains briefly, as shown in drawing 16, with the configuration indicated by this official report, it is supported by the shaft 410 which penetrates between the side plate members 406 of these in the tilt-bracket 408 list to which the wrap steering column 402 changes a steering shaft 400 from the superior lamella member 404 and the side plate member 406 of a pair, and supports the margo inferior of a steering column 402 at the car-body side.

[0004] Furthermore, it considers as an approximate circle arc surface configuration, and the knee protector 412 in which elastic deformation is possible is arranged in the lower part side of the tilt bracket 408 mentioned above. This knee protector 412 is elastically supported through the stay 414 in which elastic deformation is possible at the margo-inferior side of a steering column 402.

[0005] According to the above-mentioned configuration, if the external force beyond a predetermined value acts from the front of a car, crew is going to do inertia migration to a car front side, and while crew's leg is crooked considering a knee as an origin in connection with this, it is going to carry out inertia migration in this direction. For this reason, when the knee protector 412 is not arranged temporarily, crew's knee may contact a tilt bracket 408. However, if the knee protector 412 is arranged under the tilt bracket 408 like the above, crew's knee will be contacting the knee protector 412.

[0006] Although what also has the configuration significant as a cure at the time of the external force beyond a predetermined value acting from the front of a car which arranges such a knee protector 412 is seemed, it is also possible to approach from another viewpoint as the cure concerned in relation with crew's leg, and it is important also from a viewpoint of defence in depth to form the cure concerned in relation with crew's leg from many sides.

[0007] as a result of hit on an idea from such a view and repeat an experiment, this artificer resulted in the conclusion that change the tread of pedals for cars, such as a brake pedal, into a free condition using deformation of the body panel at the time of the external force beyond a predetermined value act from the front of a car etc. and displacement behavior be also materialize as a very effective cure .

[0008] It is the purpose that this invention obtains the pedal supporting structure for cars which can change the tread of the pedal for cars into a free condition when the external force beyond a predetermined value acts on car anterior part in view of the above-mentioned knowledge.

[0009]

[Means for Solving the Problem] This invention according to claim 1 is supported rockable at the circumference of a center-of-oscillation shaft. It is the pedal supporting structure for cars applied to the pedal for cars which transmits the treading strength which crew gave through the treading strength transfer member which rocked by giving crew's treading strength to the tread prepared in the lower limit section, and was connected with the predetermined part to a fluid pressure conversion means. Said pedal for cars The 1st arm connected the treading strength transfer member side

and the 2nd arm equipped with the tread while engaging with the 1st arm concerned, It consists of ***** and is characterized by what it has a discharge means to cancel engagement on the 1st arm and the 2nd arm further using the variation rate by the side of the abbreviation car back of the car-body side configuration member at the time of the external force beyond a predetermined value acting on car anterior part for.

[0010] The pedal supporting structure for cars concerning this invention according to claim 2 is characterized by what it has a regulation means to regulate the relative displacement more than the specified quantity to the pedal treading-in direction of the 2nd arm to the 1st arm for in the condition that engagement on the 1st arm and the 2nd arm was canceled, in invention according to claim 1.

[0011] Since the 1st arm connected the treading strength transfer member side and the 2nd arm equipped with the tread are usually sometimes being engaged according to this invention according to claim 1, if crew gives treading strength to the tread of the 2nd arm, the 1st arm will also be rocked with the 2nd arm at the circumference of a center-of-oscillation shaft. Thereby, through the treading strength transfer member connected with the 1st arm, the treading strength which crew gave is transmitted to a fluid pressure conversion means, and is changed into fluid pressure.

[0012] On the other hand, if the external force beyond a predetermined value acts on car anterior part, a car-body side configuration member will displace to an abbreviation car back side, and engagement on the 1st arm and the 2nd arm will be canceled by the discharge means using this variation rate. For this reason, the restraint which was acting between the 1st arm and the 2nd arm is lost.

[0013] The operation of this invention according to claim 2 is as follows. According to this invention according to claim 1 mentioned above, if engagement on the 1st arm and the 2nd arm is canceled by the discharge means, the 2nd arm can be freely moved to the 1st arm.

[0014] In the condition that engagement on the 1st arm and the 2nd arm was canceled by this invention according to claim 2 here since the regulation means was established If crew breaks in the tread of the 2nd arm, when the amount of relative displacements to the pedal treading-in direction of the 2nd arm to the 1st arm will reach the specified quantity, the relative displacement to the pedal treading-in direction of the 2nd arm to the 1st arm concerned is regulated by the regulation means. For this reason, after regulating, pedal actuation of crew is attained.

[0015]

[Embodiment of the Invention] The [1st operation gestalt] The supporting structure of the brake pedal 10 concerning the 1st operation gestalt is hereafter explained using drawing 1 - drawing 7.

[0016] The supporting structure of the brake pedal 10 of the hanging type as "a pedal for cars" is shown to drawing 1 by side view, and the important section longitudinal-section structure of the brake pedal 10 concerned is shown in drawing 2, and the planar structure which looked at the important section of the brake pedal 10 concerned from the upper part side is further shown in drawing 3. In addition, the supporting structure of the brake pedal 10 concerning this operation gestalt is applied to a full-cab-over type car.

[0017] As shown in these drawings, the brake pedal 10 supported by the pedal bracket 14 (refer to drawing 2 and drawing 3) rockable is arranged at the vehicle interior-of-a-room side of the front panel 12 as a "car-body side configuration member." This brake pedal 10 is halved in the abbreviation car vertical direction by the pedal upper part arm 16 as the "1st arm" arranged as a longitudinal direction, and the pedal lower part arm 18 as "the 2nd arm."

[0018] The point of the push rod (operating rod) 20 as a "treading strength transfer member" is connected with the upper limit section of the pedal upper part arm 16 free [relative rotation]. If it explains concretely, the clevis 22 made into the abbreviation KO typeface is attached in the point of a push rod 20 by plane view, and the upper limit section of the pedal upper part arm 16 is arranged in the state of insertion at the both-sides circles of this clevis 22. And a clevis pin 24 is inserted in the both-sides section of this clevis 22, and the upper limit section of the pedal upper part arm 16, and the upper limit section of the pedal upper part arm 16 and the point of a push rod 20 are connected free [relative rotation] by escaping at the penetration edge of the clevis pin 24 concerned, and carrying out the insertion stop of the beta pin 26 grade for stops.

[0019] In addition, the end face section of a push rod 20 is connected with the brake booster which functions as a treading strength enhancement means for reinforcing crew's treading strength given to the brake pedal 10 and which is not illustrated. Furthermore, the reservoir tank with which the volume change of a fluid pressure network is followed, and brake Froude is stored and supplied to the master cylinder list which functions on a brake booster as a fluid pressure conversion means for changing into fluid pressure the pressure reinforced by the brake booster concerned is arranged in one.

[0020] On the other hand, the pedal pad 28 as a "tread" with which crew's treading strength is given is attached in the lower limit section of the pedal lower part arm 18. Moreover, the upper limit section of the pedal lower part arm 18 is engaging with the lower limit section of the pedal upper part arm 16 through the pedal boss 30. If it explains concretely,

as shown in drawing 2 , the circular hole is formed in the lower limit section of the pedal upper part arm 16, and the approximately cylindrical pedal boss 30 was pressed fit into this circular hole, and it has fixed by welding. Furthermore, serration 32 is formed in the pedal boss's 30 shaft-orientations pars intermedia, and the pedal boss 30 and the upper limit section of the pedal lower part arm 18 are being engaged by carrying out fitting of the upper limit section of the pedal lower part arm 18 to the serration 32 concerned (refer to drawing 4).

[0021] In addition, the bush 34 made of resin is inserted in the pedal boss's 30 shaft-orientations both ends, and the color made of resin which is not illustrated is further inserted into these bushes 34. And the brake pedal 10 is supported rockable by making the pedal boss 30 into the center of oscillation at the circumference of a mounting bolt 36 by inserting the mounting bolt 36 as a "center-of-oscillation shaft" in the pedal boss's 30 axis section from one side plate section 14A side of a pedal bracket 14, and screwing a nut 38 from the side plate section 14B side of another side.

[0022] Furthermore, between the upper limit section sides of the pedal lower part arm 18, the tabular release lever 40 as a "discharge means" intervenes the lower limit section side of the pedal upper part arm 16 mentioned above. The release lever 40 has constituted the abbreviation epsilon configuration by side view. The lower limit section of a release lever 40 is combined near the longitudinal direction pars intermedia of the pedal lower part arm 18 by the rivet 42. Therefore, the release lever 40 is supported by the pedal lower part arm 18 rockable at the circumference of a rivet 42. moreover -- the upper part side of a release lever 40 -- the front end side from a back end side -- going -- the shape of radii -- notching -- him -- ***** 44 is formed. The notching width of face of this notching 44 is greatly set up a little rather than the outer-diameter dimension of the pedal boss's 30 serration 32.

[0023] Moreover, the compression coil spring 46 is arranged between the upper limit sections of the pedal lower part arm 18 and side plate section 14B of another side of a pedal bracket 14 which were mentioned above. The pedal boss 30 is looped around this compression coil spring 46, and the contact stop of the end section is carried out at side plate section 14B of said another side, and the contact stop of the other end is carried out on the side face of the upper limit section of the pedal lower part arm 18. Therefore, press energization of the compression coil spring 46 is always carried out in the direction where these members stick the upper limit section [of the pedal lower part arm 18], and upper part side of a release lever 40 to the lower limit section of the pedal upper part arm 16. Furthermore, taper section 40A which board thickness increases is formed in the up front end side of the release lever 40 mentioned above as are shown in drawing 3 , and it goes to a front end side from the back end side of the release lever 40 concerned.

[0024] Next, effectiveness is explained to the operation list of this operation gestalt.

[0025] If it is at the time of the normal operation of a brake pedal 10, while the upper limit section of the pedal lower part arm 18 is maintaining the condition of having engaged with the pedal boss's 30 serration 32, according to the energization force of the compression coil spring 46, the pedal boss 30 is located near the longitudinal direction pars intermedia of the notching 44 of a release lever 40. Therefore, if crew breaks in the pedal pad 28 of the pedal lower part arm 18, the pedal boss 30 who engaged with the upper limit section of the pedal lower part arm 18 concerned will also rotate in this direction to the circumference of a mounting bolt 36. For this reason, the pedal upper part arm 16 welded to the pedal boss 30 is also rocked in this direction, and, thereby, a push rod 20 is pressed towards an abbreviation car back side. Consequently, after crew's treading strength is transmitted to a brake booster and reinforced through a push rod 20, it is changed into fluid pressure by the master cylinder.

[0026] On the other hand, when the external force beyond a predetermined value acts on car anterior part, as shown in drawing 5 , the front panel 12 may displace to an abbreviation car back side. In this case, the front end section of a release lever 40 is pressed by the front panel 12. For this reason, a release lever 40 is rocked to an abbreviation car back side at the circumference of a rivet 42, and as shown in drawing 6 in connection with this, the front end edge section of the lower limit section of the pedal upper part arm 16 slides on the taper section 40A top of a release lever 40 relatively. A variation rate is carried out in the direction which the upper limit section of the pedal lower part arm 18 resists the energization force of the compression coil spring 46, and estranges from the pedal upper part arm 16 by the release lever 40 by this, and engagement to the upper limit section of the pedal lower part arm 18 and the pedal boss's 30 serration 32 is canceled. That is, the restraint to the pedal upper part arm 16 which was acting on the pedal lower part arm 18 through the pedal boss's 30 serration 32 is lost.

[0027] Consequently, when the external force beyond a predetermined value acts on car anterior part, the pedal lower part arm 18, as a result a pedal pad 28 can be changed into a free condition, and the rotation variation rate of the pedal lower part arm 18 which lost restraint is carried out to the circumference of the pedal boss 30 to an abbreviation car front side. Thereby, according to this operation gestalt, crookedness of the knee of the leg by inertia migration of the crew at the time of the external force beyond a predetermined value acting from the front of a car can be controlled, as a result the knee of crew's leg can be kept away from a steering column.

[0028] In addition, although serration 32 was adopted with this operation gestalt as a configuration for making the pedal

lower part arm 18 and the pedal boss 30 engaged, convex gear engagement as shown not only in this but in drawing 7 may be adopted. When it explains briefly, the key-like convex gear 48 is formed in the pedal boss's 30 shaft-orientations pars intermedia at intervals of 90 degrees, and you may make it make the upper limit section and the pedal boss 30 of the pedal lower part arm 18 engaged by carrying out fitting of these convex gears 48 to the upper limit section of the pedal lower part arm 18. All are applicable, if it is the configuration grasped as an engagement means by which the pedal boss 30 can also rotate in one and can transmit the rocking concerned to the pedal upper part arm 16 certainly through the pedal boss 30 when the upper limit section of the pedal lower part arm 18 can be displaced relatively to shaft orientations to the pedal boss 30 and the pedal lower part arm 18 is rocked in short. This point is the same also about the 2nd operation gestalt and the 3rd operation gestalt which are mentioned later.

[0029] Moreover, although the compression coil spring 46 grasped as an energization means was used for in a narrow sense with this operation gestalt in order to maintain the condition of having made the upper limit section of the pedal lower part arm 18 engaging with the pedal boss's 30 serration 32 In addition to this, the engagement condition of the upper limit section of the pedal lower part arm 18 and the pedal boss 30 is usually sometimes held. All are applicable, if it is the configuration grasped as a maintenance means by which the maintenance condition concerned can be canceled in response to the thrust from a release lever 40 when the external force beyond a predetermined value acts on car anterior part. making serration 32 insert in the tubed elastic bodies (rubber bush etc.) of the predetermined degree of hardness with the bore shorter than the outer diameter of serration 32 in a natural condition in carrying out fitting of the snap ring to the V groove formed in the predetermined part of serration 32 **** -- being certain -- it is -- it is also possible to apply the configuration of crushing [which is spacing suitably] the addendum of serration 32 a grade to the back with [to the pedal boss 30 of the pedal lower part arm 18] a group. The same is said of this point also about the 2nd operation gestalt and the 3rd operation gestalt which are mentioned later.

[0030] Furthermore, although the configuration from which it is made to secede was taken with this operation gestalt when fixed the lower limit section of the pedal upper part arm 16 by welding to the pedal boss 30, unified, the upper limit section of the pedal lower part arm 18 was made to usually engage with the pedal boss 30 concerned and the external force beyond a predetermined value acted on car anterior part, not only this but a reverse configuration may be taken. That is, the upper limit section of the pedal lower part arm 18 is fixed by welding to the pedal boss 30, and it unifies, and when the lower limit section of the pedal upper part arm 16 is made to usually engage with the pedal boss 30 concerned and the external force beyond a predetermined value acts on car anterior part, you may make it make it break away. This point is the same also about the 2nd operation gestalt mentioned later. Moreover, said reverse configuration is taken with the 3rd operation gestalt mentioned later.

The [2nd operation gestalt] Next, the supporting structure of the brake pedal 10 concerning the 2nd operation gestalt is explained using drawing 8 - drawing 10 . In addition, about the same component as the 1st operation gestalt mentioned above, the same number is attached and the explanation is omitted.

[0031] As shown in drawing 8 and drawing 9 , with this operation gestalt, the description is in the point of having formed the specification part 50 as a "regulation means" formed in L typeface by front view in the upper limit section of the pedal lower part arm 18. Rising wood 50A of a specification part 50 has extended to extent which carries out a polymerization by the front end side and front view of pars intermedia of the pedal upper part arm 16 (refer to drawing 9).

[0032] According to the above-mentioned configuration, the point which a release lever 40 is pressed, cancels engagement to the upper limit section of the pedal lower part arm 18 and the pedal boss's 30 serration 32 by this, and changes the pedal lower part arm 18, as a result a pedal pad 28 into a free condition by the posterior displacement of the front panel 12 when the external force beyond a predetermined value acts on car anterior part is the same as that of the case of the 1st operation gestalt mentioned above.

[0033] Here, with this operation gestalt, since the specification part 50 of L typeface was formed in the upper limit section of the pedal lower part arm 18, if the pedal lower part arm 18 secedes from the pedal boss's 30 serration 32 like the above, as shown in drawing 10 , rising wood 50A of the specification part 50 concerned will contact the front end side of the pars intermedia of the pedal upper part arm 16. Thereby, the relative displacement to the pedal treading-in direction of the pedal lower part arm 18 to the pedal upper part arm 16 is regulated. Consequently, after the relative displacement to the pedal treading-in direction of the pedal lower part arm 18 was regulated by the specification part 50, pedal actuation of crew is attained and transit to a nearby repair shop etc. can be enabled after said external force operation.

The [3rd operation gestalt] Next, the supporting structure of the brake pedal 60 concerning the 3rd operation gestalt is explained using drawing 11 - drawing 15 . In addition, about the same component as the 1st operation gestalt mentioned above, the same number is attached and the explanation is omitted.

[0034] the brake-pedal supporting structure used with the 1st and 2nd operation gestalt in this operation gestalt as shown in drawing 11 - drawing 13 -- a bonnet type car -- being certain -- it is -- the description is that it applied to the semi bonnet type car. Therefore, although a part shape differs from a components layout, the fundamental view is the same as that of each operation gestalt mentioned above.

[0035] An outline arranges the dash panel 66 as a "car-body side configuration member" in the location into which an engine room 62 and the vehicle indoor space 64 are divided at the abbreviation perpendicular, as shown in drawing 11. In addition, weldbonding of the upper limit section of a dash panel 66 is carried out to the front end lower part of the cowl inner panel arranged as a longitudinal direction in the abbreviation car cross direction, and weldbonding of the lower limit section of a dash panel 66 is carried out to the floor panel.

[0036] The instrument panel reinforce 68 of the shape of a pipe which is a high intensity member is arranged considering the abbreviation car cross direction as a longitudinal direction at the abbreviation car back side of a dash panel 66, and it is built over the pedal bracket 70 among both. In addition, the pedal bracket 70 is formed in the cross-section KO typeface by which the lower part side was opened wide, and opening, notching, etc. for reducing the rigidity over an abbreviation car cross direction intentionally are formed in the anterior part side of the side plate sections 70A and 70B of the pair of a pedal bracket 70.

[0037] Between side plate section 70A of the pair of the pedal bracket 70 mentioned above, and 70B, the brake pedal 60 of the hanging type as "a pedal for cars" is supported rockable. This brake pedal 60 is also halved by the pedal upper part arm 72 as "the 1st arm", and the pedal lower part arm 74 as "the 2nd arm", and is mutually connected through the pedal boss 30 by the same engagement configuration as the 1st operation gestalt mentioned above (refer to drawing 12 and drawing 13). However, with this operation gestalt, the upper limit section of the pedal lower part arm 74 is welded and united with the pedal boss 30, and the upper limit section of the pedal upper part arm 72 is engaging with the pedal boss's 30 serration 32.

[0038] Moreover, with this operation gestalt, the master cylinder 78 grade as the brake booster 76 and a "fluid pressure conversion means" is arranged in the front side of the pedal bracket 70 of the inside from [62] the reasons of a car layout (i.e., an engine room). Since it is arranged in the condition of the push rod 20 having penetrated the dash panel 66 from the brake booster 76 concerned, and having projected to the vehicle indoor space 64 side, the pedal upper part arm 72 has extended towards the abbreviation car lower part side from the pedal boss 30. In addition, although the point that a push rod 20 is connected with the point (lower limit section in this case) of the pedal upper part arm 72 free [relative rotation] with a clevis 22 and a clevis pin 24 is the same as the 1st operation gestalt mentioned above, the crank of the point side of the pedal upper part arm 72 is carried out in the direction estranged from the pedal lower part arm 74 in order to avoid interference with the pedal lower part arm 74 at the time of the usual pedal actuation (refer to drawing 12).

[0039] Furthermore, with this operation gestalt, lobe 80A which projects toward a dash panel 66 side is formed in the front end side of a release lever 80 from the ***** rather than the case of the 1st operation gestalt which the distance from the pedal boss 30 to a dash panel 66 mentioned above, or the 2nd operation gestalt. Corresponding to this, the press bracket 82 of a hat configuration is attached in lobe 80A in a dash panel 66, and the location which counters by welding or the fastener by side view. In addition, although taper section 80B of a release lever 80 is formed in the field by the side of the pedal upper part arm 72 with this operation gestalt, it is the same as that of taper section 40A of the release lever 40 in the 1st operation gestalt functionally. Moreover, with this operation gestalt, a release lever 80 and the press bracket 82 are equivalent to the "discharge means" of this invention.

[0040] Moreover, the specification part 84 as a "regulation means" of L typeface is really formed in the predetermined location by the side of the back end in the pedal lower part arm 74 (location in which the pedal upper part arm 72 and interference are possible) by plane view.

[0041] If it is at the time of the normal operation of a brake pedal 60, while the upper limit section of the pedal upper part arm 72 is maintaining the condition of having engaged with the pedal boss's 30 serration 32, according to the energization force of the compression coil spring 46 according to the above-mentioned configuration, the pedal boss 30 is located near the longitudinal direction pars intermedia of the notching 44 of a release lever 80. Therefore, if crew breaks in the pedal pad 28 of the pedal lower part arm 74, the pedal boss 30 unified by the upper limit section of the pedal lower part arm 74 concerned and welding will also rotate in this direction to the circumference of a mounting bolt 36. For this reason, the pedal upper part arm 72 which engaged with the pedal boss's 30 serration 32 is also rocked in this direction, and, thereby, a push rod 20 is pressed towards an abbreviation car front side. Consequently, crew's treading strength is changed into fluid pressure by the master cylinder 78 after [which was transmitted to the brake booster 76 through the push rod 20] being reinforced.

[0042] On the other hand, when the external force beyond a predetermined value acts on car anterior part, the load in

that case may be inputted into a dash panel 66 through a master cylinder 78 and the brake booster 76. In this case, to displacing to an abbreviation car back side, as shown in drawing 14, since a dash panel 66 is high intensity, it hardly displaces the instrument panel reinforce 68 to an abbreviation car back side. For this reason, a relative displacement arises among both, it is a pedal bracket 70, especially buckling distortion of the anterior part side is carried out. [0043] Moreover, if a dash panel 66 displaces to an abbreviation car back side, the press bracket 82 which was being fixed to the dash panel 66 in connection with this will also be displaced to an abbreviation car back side. For this reason, lobe 80A of a release lever 80 is pressed to an abbreviation car back side, and makes a release lever 80 rock to the circumference of a rivet 42 with the press bracket 82. For this reason, as shown in drawing 15, the front end edge section of the upper limit section of the pedal upper part arm 72 slides on the taper section 80B top of a release lever 80 relatively. A variation rate is carried out in the direction which the upper limit section of the pedal upper part arm 72 resists the energization force of the compression coil spring 46, and estranges from the pedal lower part arm 74 by the release lever 80 by this, and engagement to the upper limit section of the pedal upper part arm 72 and the pedal boss's 30 serratation 32 is canceled. That is, the restraint to the pedal lower part arm 74 which was acting on the pedal upper part arm 72 through the pedal boss's 30 serratation 32 is lost.

[0044] Consequently, when the external force beyond a predetermined value acts on car anterior part, the pedal lower part arm 74, as a result a pedal pad 28 can be changed into a free condition, and the rotation variation rate of the pedal lower part arm 74 which lost restraint is carried out to the circumference of the pedal boss 30 to an abbreviation car front side. Therefore, also according to this operation gestalt, crookedness of the knee of the leg by inertia migration of the crew at the time of the external force beyond a predetermined value acting from the front of a car can be controlled like the 1st operation gestalt mentioned above, as a result the knee of crew's leg can be kept away from a steering column.

[0045] Furthermore, with this operation gestalt, since the specification part 84 of L typeface was formed in the back end side of the pedal lower part arm 74, if the pedal upper part arm 72 secedes from the pedal boss's 30 serratation 32 and specified quantity rocking is carried out like the above to an abbreviation car front side, the specification part 84 concerned will contact the back end side of the pars intermedia of the pedal upper part arm 72. Thereby, the relative displacement to the pedal treading-in direction of the pedal lower part arm 74 to the pedal upper part arm 72 is regulated. Consequently, according to this operation gestalt as well as the 2nd operation gestalt mentioned above, after the relative displacement to the pedal treading-in direction of the pedal lower part arm 74 was regulated by the specification part 84, pedal actuation of crew is attained and transit to a nearby repair shop etc. can be enabled after said external force operation.

[0046] In addition, although the configuration which attaches the press bracket 82 in a dash panel 66 was taken with this operation gestalt, the configuration which really fabricates the heights which are equivalent to the press bracket 82 not only at this but dash panel 66 the very thing may be taken.

[0047] With each operation gestalt explained above, although this invention was applied for the main brake pedal of a hanging type, this invention is applicable also to pedals for cars, such as clutch pedal of not only this but a hanging type.

[0048]

[Effect of the Invention] As explained above, the pedal supporting structure for cars concerning this invention according to claim 1 The 1st arm connected the treading strength transfer member side and the 2nd arm equipped with the tread while engaging with the 1st arm concerned, Constitute the pedal for cars from ******, and further, since a discharge means to cancel engagement on the 1st arm and the 2nd arm using the variation rate by the side of the abbreviation car back of the car-body side configuration member at the time of the external force beyond a predetermined value acting on car anterior part was established When the restraint which was acting between the 1st arm and the 2nd arm at the time of the external force operation concerned can be made to lose, consequently the external force beyond a predetermined value acts on car anterior part, it has the outstanding effectiveness that the tread of the pedal for cars can be changed into a free condition.

[0049] The pedal supporting structure for cars concerning this invention according to claim 2 In invention according to claim 1, in the condition that engagement on the 1st arm and the 2nd arm was canceled, since it has a regulation means to regulate the relative displacement more than the specified quantity to the pedal treading-in direction of the 2nd arm to the 1st arm After regulating the relative displacement of the 2nd arm to the 1st arm with a regulation means, pedal actuation of crew is attained, consequently it has the outstanding effectiveness that transit to a nearby repair shop etc. can be enabled after said external force operation.

[Translation done.]

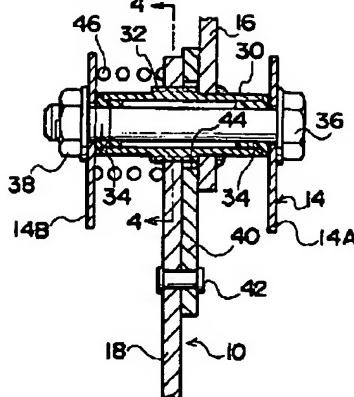
* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

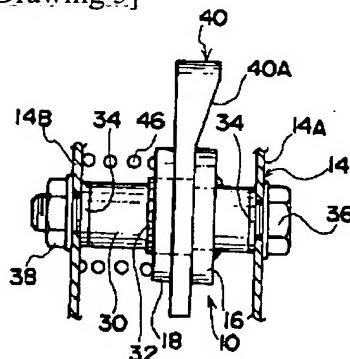
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

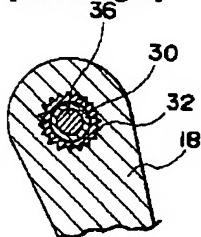
[Drawing 2]



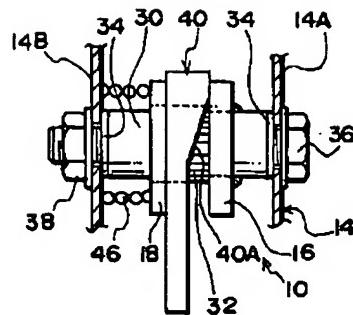
[Drawing 3]



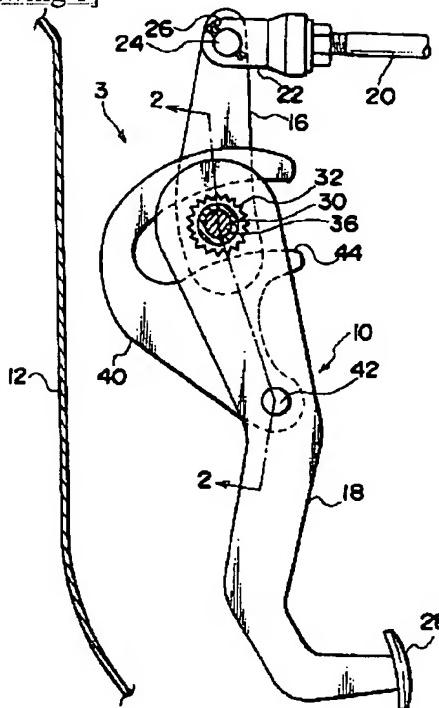
[Drawing 4]



[Drawing 6]

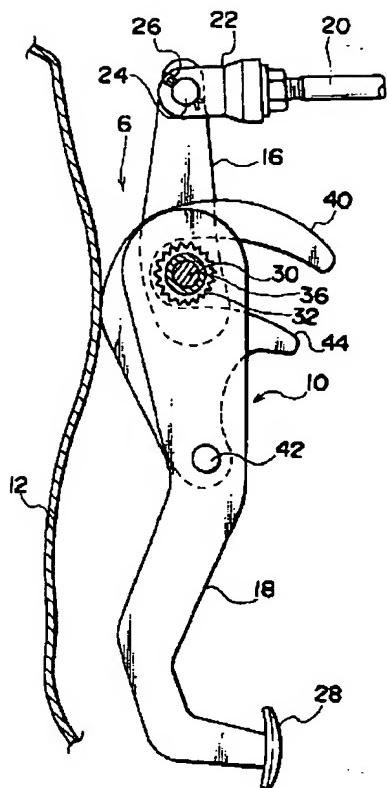


[Drawing 1]

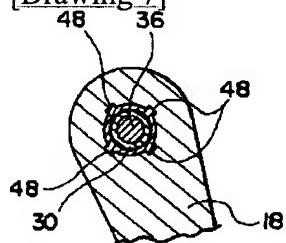


1 0	ブレーキペダル（車両用ペダル）	2 0	ブッシュロッド （駆力伝達部材）
1 2	フロントパネル（車体面構成部材）	2 8	ペダルパッド（踏面）
1 6	ペダル上方アーム（第1アーム）	3 6	取付ボルト（運動中心軸）
1 8	ペダル下方アーム（第2アーム）	4 0	解除レバー（解除手段）

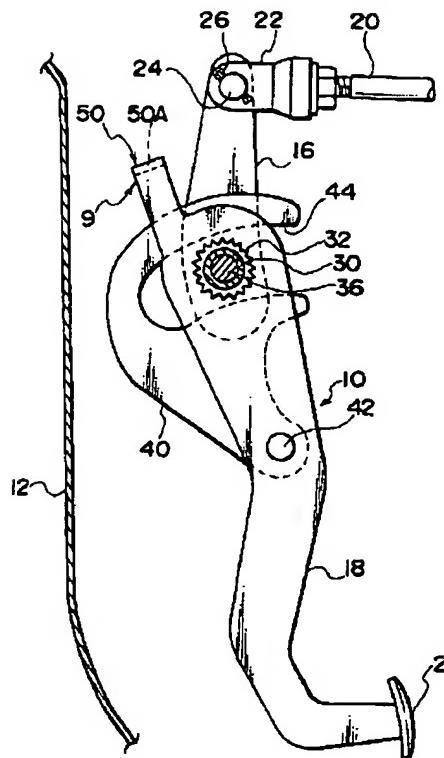
[Drawing 5]



[Drawing 7]

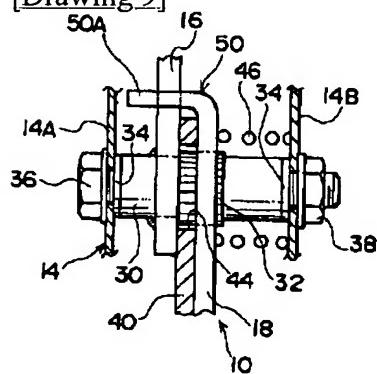


[Drawing 8]

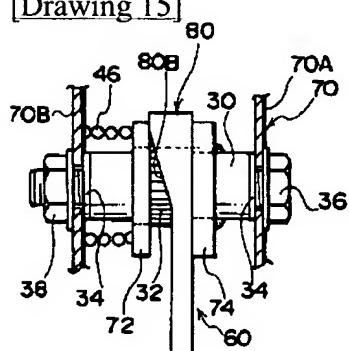


5 0 機械部（操作手段）

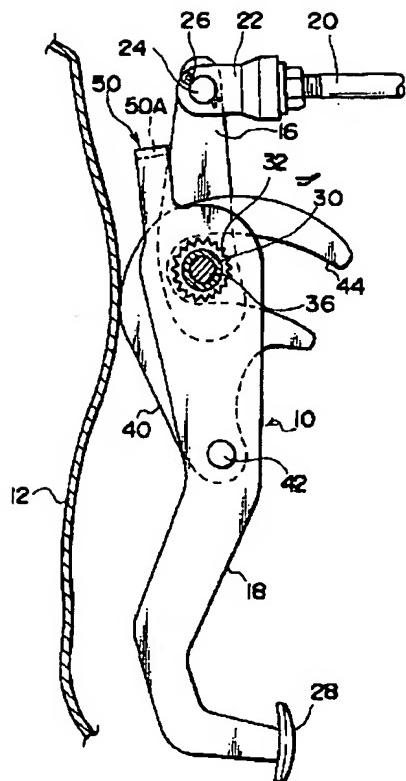
[Drawing 9]



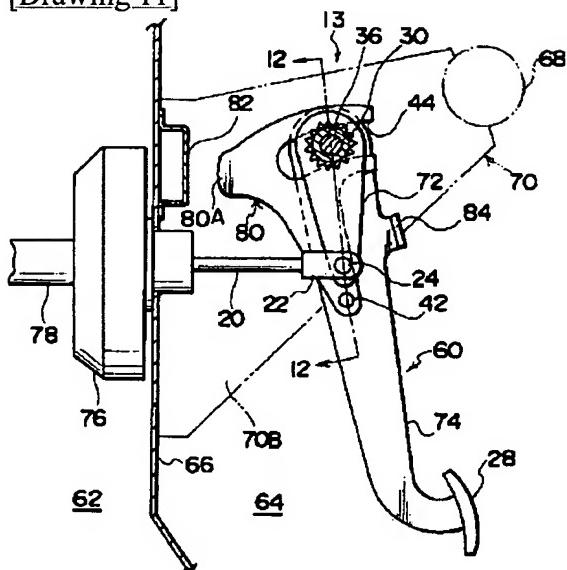
[Drawing 15]



[Drawing 10]

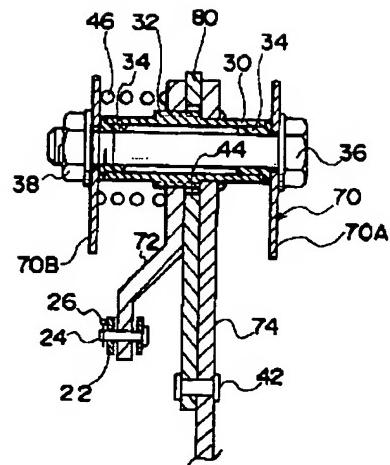


[Drawing 11]

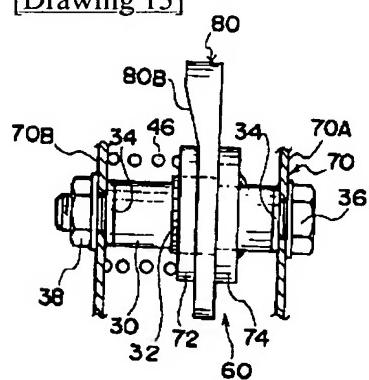


- 6 0 ブレーキペダル（車両用ペダル）
- 6 6 ダッシュパネル（車体構成部材）
- 7 2 ペダル上方アーム（第1アーム）
- 7 4 ペダル下方アーム（第2アーム）
- 7 8 マスターシリンダ（液圧変換手段）
- 8 0 解除レバー（解除手段）
- 8 2 押圧プラケット（解除手段）
- 8 4 摺制部（摺制手段）

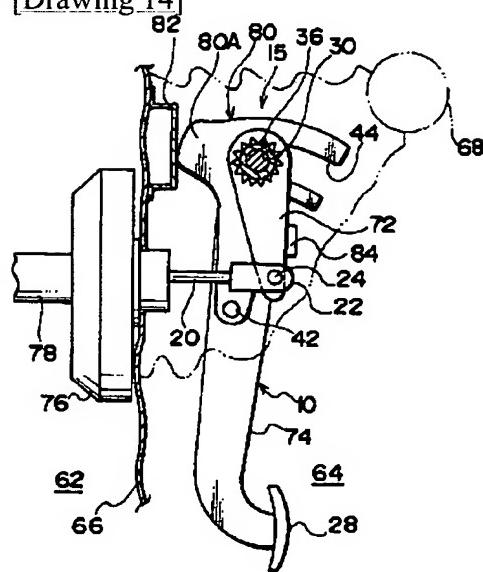
[Drawing 12]



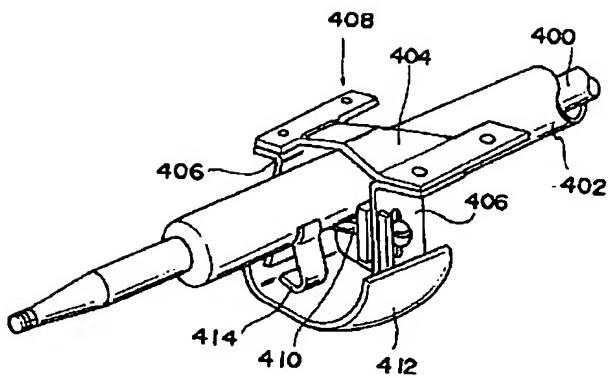
[Drawing 13]



[Drawing 14]



[Drawing 16]



[Translation done.]